Liberal use of whitespace around poster border, poster title, authors, logos, and section titles draws attention and maximizes readability

Each thought is physically separated by line breaks to avoid the "block of text," which can be difficult to approach

Each point is descriptive, but concise

The abstract includes the impact and the scope of the work. It allows people passing by to quickly assess whether or not to engage with the poster

The title of the section provides the main takeaway

Results are stated in plain English and are placed next to the plots that they refer to

Programmable control of acetate metabolism in Escherichia coli

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Abstract

We are creating a genetic circuit that detects and responds to acetate production, a common problem in industrial fermentations of E. coli

This circuit integrates three metabolite signals, computes the cause of acetate production, and produces outputs that counteract these conditions

Genetic control enables individual cells to respond to the stresses they experience during industrial fermentation, which can improve growth and product yields

Controlling transcription, translation, and degradation of *pta* reduces acetate production

Developed inducible repression of acetate production genes CRISPRi³, small RNA's, and Mesoplasma florum LON protease⁴ act against native pta gene expression

Each approach downregulated target genes, but displayed different dynamics



We chose to use the mf-LON output due to its rapid degradation of the target gene.

Direct feedback reduces acetate production

We used the acetate sensor (P_{glnAP2}) to drive expression of the mf-LON protease.





We observed strong, real-time control of RFP abundance in response to an endogenous increase in acetate production.

A digital circuit responds to metabolic cell state

We built a genetic program that integrates signals for acetate, glucose, and oxygen which

 Activates GFP production only when acetate is made in response to glucose

Deactivates GFP production in microaerobic conditions

